



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
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Canada

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D119-796-241TRN
Job Sheet 198197



Part No: D119-796-241TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 7/23/19

Job Tracking No:

Due Date: 12/2/19

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: DWG RD119-796 REV.K IPP REV A RQ 14/05/27 VERIFIED BY DD IPP REV:B 16.05.04 AS PER DWG REV.I
DD VERF:JLM

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Lead Time	DAS	Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier				
100	Mori Seiki TL-40 - 1	1 pcs		12/2/19	1.00	1.72	Mori Seiki TL-40 - 1			662019-08-12	9-89
110	QC 2	1 pcs		12/2/19	0.00	0.00	QC 2 - 1				
							QC 2 - 12				
							QC 2 - 14				
							QC 2 - 17				
							QC 2 - 19				
							QC 2 - 2				
							QC 2 - 20				
							QC 2 - 22				
							QC 2 - 23				
							QC 2 - 25				
							QC 2 - 32				
							QC 2 - 33				
							QC 2 - 35				
							QC 2 - 39				
							QC 2 - 4				
							QC 2 - 40				
							QC 2 - 44				
							QC 2 - 45				
							QC 2 - 48				
							QC 2 - 49				
							QC 2 - 50				
							QC 2 - 51				
							QC 2 - 52				
							QC 2 - 57				
							QC 2 - 62				
							QC 2 - 63				
QC 2 - 8					DAS						
QC 2 - 66					662019-08-12						
QC 2 - 64					9-89						

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					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	12/2/19	1.00 1.72	Mori Seiki TL-40 - 1 - B4B	DAS 66 2019-08-14 9-89
130	QC 2	1 pcs	12/2/19	0.00 0.00	QC 2 - 1	
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	
					QC 2 - 66	DAS 66 2019-08-14 9-89
					QC 2 - 64	
					QC 2 - 65	
					QC 2 - 5	
					QC 2 - 71	
					QC 2 - 73	
					QC 2 - 69	
140	QC 8	1 pcs	12/2/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	

				QC 8 - 67	
				QC 8 - 1 (A)	47
				QC 8 - 47	9-89
				QC 8 - 40	
				QC 8 - 52	
				QC 8 - 23	
				QC 8 - 57	
145	Crosstubes - 2 - B4B	1	12/2/19	0.00 0.45	Crosstubes - 1 - B4B
	pcs				Crosstubes - 2 - B4B
					Crosstubes - 3 - B4B
					Crosstubes - 4 - B4B
150	Handfinish - 1-1 Chemical-B4B	1	12/2/19	0.00 0.40	Handfinish - 1 - 1 - B4B
	pcs				Handfinish - 1 - 2 - B4B
					Handfinish - 1 - 3 - B4B
					Handfinish - 1 - 4 - B4B
					Handfinish - 1 - 5 - B4B
					Handfinish - 1 - 6 - B4B
					Handfinish - 1 - 7 - B4B
					Handfinish - 1 - 8 - B4B
					Handfinish - 1 - 9 - B4B
					Handfinish - 1 - 10 - B4B
					Handfinish - 1 - 11 - B4B
					Handfinish - 1 - 12 - B4B
					Handfinish - 1 - 13 - B4B
					Handfinish - 1 - 14 - B4B
					Handfinish - 1 - 15 - B4B
					Handfinish - 1 - 16 - B4B
					Handfinish - 1 - 17 - B4B
					Handfinish - 1 - 18 - B4B
					Handfinish - 1 - 19 - B4B
					Handfinish - 1 - 20 - B4B
					Handfinish - 1 - 21 - B4B
					Handfinish - 1 - 22 - B4B
160	QC 7	1	12/2/19	0.00 0.00	QC 7 - 10
	pcs				QC 7 - 13
					QC 7 - 14
					QC 7 - 15
					QC 7 - 17
					QC 7 - 18
					QC 7 - 19
					QC 7 - 2
					QC 7 - 28
					QC 7 - 3
					QC 7 - 30
					QC 7 - 34
					QC 7 - 36
					QC 7 - 37
					QC 7 - 41
					QC 7 - 47
					QC 7 - 48
					QC 7 - 51
					QC 7 - 58
					QC 7 - 59
					QC 7 - 60
					QC 7 - 9
					QC 7 - 68
					QC 7 - 50
					QC 7 - 67
					QC 7 - 40

170 Packaging 3-1 - Stock - B4B	1 pcs	12/2/19	0.00 0.00	QC 7 - 24	
				QC 7 - 43	
				QC 7 - 61	
				QC 7 - 81	
				Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180 QC 21 - FG	1 pcs	12/2/19	0.00 0.00	QC 21 - FG - 21	
				QC 21 - FG - 70	
				QC 21 - FG - 53	

JTD 17-10-11

DAG

21

9:00

OCT 11 2019

Part Op 100 - 1-Fill tube with sand & install plugs on both ends as per Folio FB298 2-Turn first side as per Folio FB298

Descriptions: 110 - (QC2- Inspect parts off machine FAI/FAIB)

120 - 1-Turn second side as per Folio FB298

130 - (QC2- Inspect parts off machine FAI/FAIB)

140 - (QC8- Inspect parts - second check)

145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150 - 1- Handfinish X-TUBE INSIDE AND OUT. ALODINE AND ACID ETCH X-TUBE AS PER DWG . USE RED SCOTCH BRITE PAD.

160 - (QC7-Inspect Chemical Conversion Coat)

170 - (Identify as per dwg & Stock Location: _____) LOCATION : LG014

180 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6023-106	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	5013837

7/23/2019

[Dart Hawkesbury] Job Sheet - Lajeunesse, Marie

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6023-106	1	14	0
Part Specifications				
Specifications could not be found.				



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CANADA
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Container No: S204563



Part: D119-796-241TRN

Job No: 198197

Serial No/Batch: S204563

Revision: K

Inspector:

Exp Date:

Instructions:

Date: 08/12/19

⑥

DART AEROSPACE LTD	Work Order: 198197
Description: Crosstube Assembly (AW119 MKII Aft)	Part Number: D119-796-241TRN
Inspection Dwg: D119-796-241 Rev: J K	Page 1 of 2

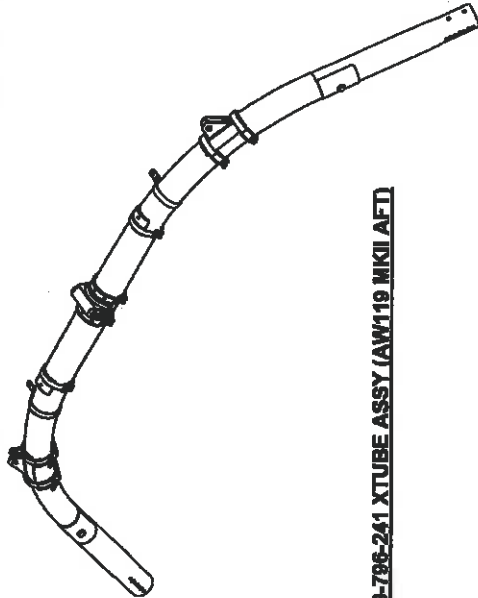
DAS
35
9-89

FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	5.88	+/-0.030	5.885	✓		CNC-08	
	2.516	+0.005/-0.000	2.521	✓		CNC-04	
	2.626	+0.005/-0.000	2.630	✓			
	2.627	+0.005/-0.000	2.632	✓			
	2.798	+0.005/-0.000	2.803	✓			
	2.799	+0.005/-0.000	2.804	✓			
	2.989	+0.005/-0.000	2.994	✓			
	3.191	+0.005/-0.000	3.196	✓		CNC-05	
	3.200	+0.005/-0.000	3.205	✓		"	
SIDE B	5.88	+/-0.030	5.887	✓		CNC-08	
	2.516	+0.005/-0.000	2.520	✓		CNC-04	
	2.626	+0.005/-0.000	2.630	✓			
	2.627	+0.005/-0.000	2.632	✓			
	2.798	+0.005/-0.000	2.803	✓			
	2.799	+0.005/-0.000	2.804	✓			
	2.989	+0.005/-0.000	2.994	✓			
	3.191	+0.005/-0.000	3.196	✓		CNC-05	
	3.200	+0.005/-0.000	3.205	✓		"	
	105.71	+/-0.020	105.7	✓		Tape	

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 198197 MWS
19-07-24

D119-796-241 XTUBE ASSY (AW119 MKII AFT)



NOTES:
1) MATERIAL: N/A
2) FINISH: MASK D5134-041/-042 DAMPER SUPPORT ASSEMBLIES, CUFFS, D5136-1/2 CONTACT PADS, THE COMPLETE CIRCUMFERENCE OF THE TUBE UNDER THE D5122-1 CENTER SUPPORT AND THE TAB ON THE D5515-1 GROUNDING CLAMP PRIOR TO APPLICATION OF CLEAR COAT/PAINT.
IF NECESSARY TOUCH UP PRIMER ON OUTSIDE OF CROSSTUBE PER DART QSI 005 4.2
APPLY WHITE CLEAR COAT TO THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA).
MASK THE UNDERSIDE OF CROSSTUBE AS SHOWN (B4-2, HATCHED AREA).
PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: N/A
6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-241" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4

7) WEIGHT: 26.28 lbs
8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
9) INSTALL D5122-1 CENTER SUPPORT HAND TIGHT ONLY. DO NOT TORQUE. INSTALL RED TAG TO INDICATE "D5122-1 CENTER SUPPORT MUST BE BONDED PER IN-D119-796 PRIOR TO FLIGHT".
10) PRIOR TO FINISHING, ABRASIVE MATING SURFACES OF D5136-1/2 AND SURFACE OF CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4108S WASH 'N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 880 ON THE INSIDE CONCAVE SURFACE OF THE D5136-1/2 CONTACT PADS AND INSTALL AT AN 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL MS21620-25 CLAMPS AND D5123-5 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS.
11) TORQUE MS21620 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY. THE NUT HAS NOT BOTTOMED-OUT AFTER TORQUING AND THE NUT IS FACING AFT.
12) PRIOR TO FINISHING, POSITION AND INSTALL D5134-041/-042 DAMPER SUPPORTS USING JIG DT10085. ABRASIVE MATING SURFACES OF THE D5134-041/-042 DAMPER SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4108S WASH 'N' WIPE DEGREASER. APPLY A 0.100" MIN THK LAYER OF PROSEAL 880 ON THE INSIDE CONCAVE SURFACE OF THE D5134-041/-042. INSTALL MS21620-25 CLAMPS AND D5123-1 CLAMP CUSHIONS WHILE WET. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 880 SEALANT HAS CURED FOR 72 HOURS. ENSURE THAT THE MS21620 CLAMPS ARE POSITIONED AS SHOWN IN DETAIL C.
13) PRIOR TO FINISHING, ABRASIVE MATING SURFACES OF CROSSTUBE AND D5152-043 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4108S WASH 'N' WIPE DEGREASER. INSTALL D5152-043 WITH LAYER OF PROSEAL 880 ON INSIDE CONCAVE SURFACE, 0.100" MIN THK LOCATE D5152-043 USING TOOL DT10112.
14) INSTALL THE D5515-1 GROUNDING CLAMP AND ASSOCIATED HARDWARE PER DETAIL "C" PRIOR TO FINISHING. TORQUE THE MS21042-3 NUT 12-15 IN-LB. COMPLETELY SEAL THE EDGES OF THE CLAMP USING PROSEAL 880.
15) CARRY OUT A RESISTANCE CHECK BETWEEN THE D5515-1 GROUNDING CLAMP AND ANY UNPAINTED SECTION OF THE CROSSTUBE IN ACCORDANCE WITH AC43-13-1B CHAPTER 11. MAXIMUM RESISTANCE IS 3 MILLIOHMS.

UNDER REVIEW
URF 18-768 18.07.04 (SAD)

RELEASED

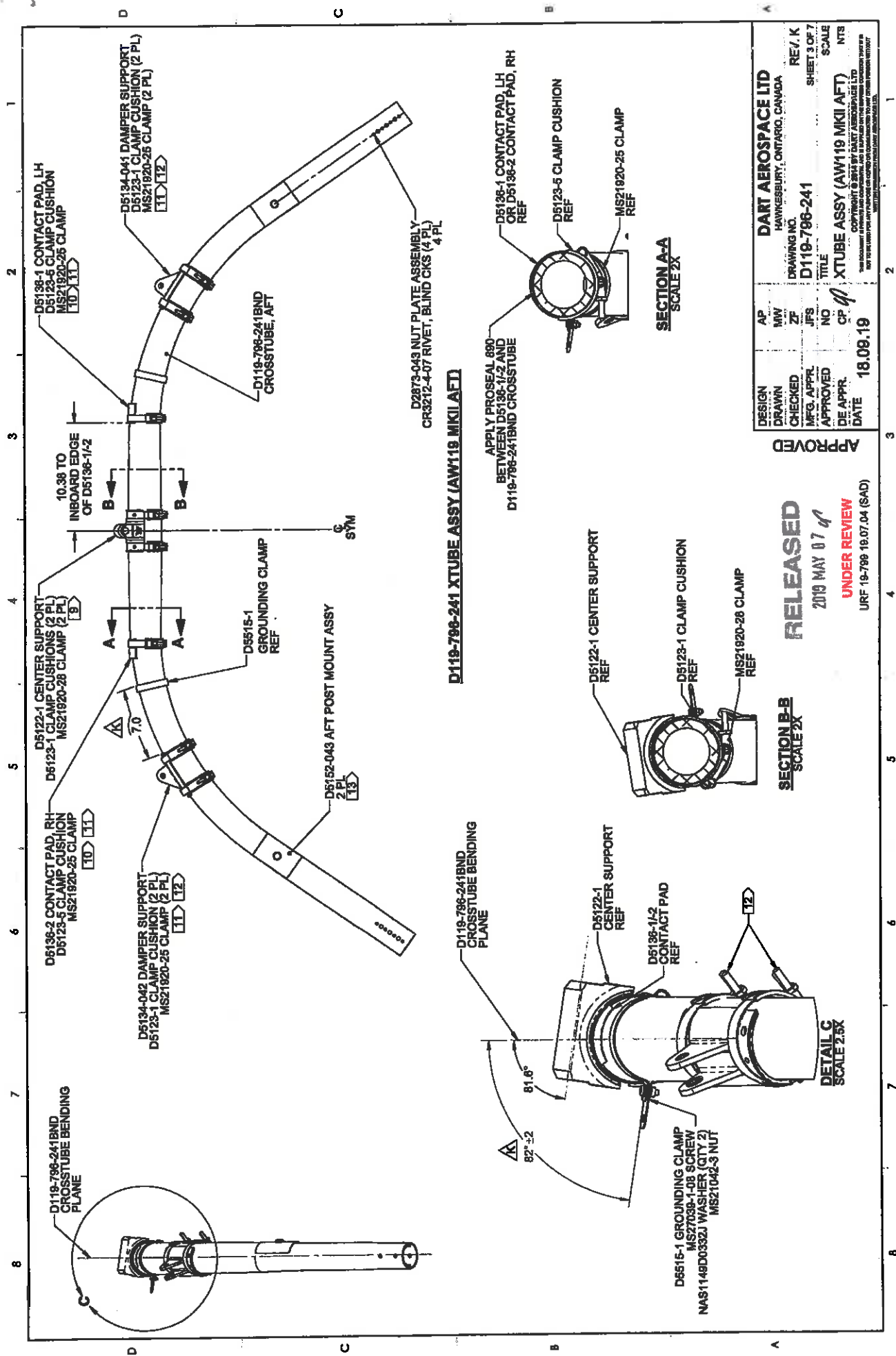
2019 MAY 07
EON M-795

APPROVED

REV.	DESCRIPTION	DATE
A	NEW ISSUE	14.06.07
B	ORIENTATION OF D5122-1 CENTER SUPPORT WAS RECHECKED. RIVETS WERE IDENTIFIED AS CONTACT BLINDS. D5122-1 WAS IDENTIFIED AS CR2212-4 AS RIVETS. ADDED REFERENCE TO STUDTUBES FOR LOCATING CUFF HOLES. RE-ORGANIZED NOTES. REMOVED REDUNDANT INFORMATION.	14.06.08
C	CR2212-4-07 RIVETS WAS CR2212-4-03 RIVETS. RADIUS BLOCK WAS NOT PLATE ASSEMBLY (BOM). REMOVED 7.5 D5136-1/2 HOLE (ON DETAIL C) REDUCED CUFF DIA TO 2.500 (C4-5). ADD INSPECTION WINDOW.	14.10.25
D	ADD D5150-3 STEP POST (2X). MOVED INSPECTION WINDOW DETAIL TO BHT 1. MODIFIED NOTES ON BHT 1 & 3.	14.11.2E
E	D5102-045 WAS D5160-3. SCOTCH BRITE 7447 RED WAS 180 GRIIT SANDPAPER.	15.01.15
F	REMOVED PRIMERPAINT ON CUFFS. 2.518 WAS 2.500 (C4-5).	15.02.05
G	FINISHING ORDER ADJUSTED. UPDATE BEND TOLERANCE AND FIN DETAIL TOLERANCE TO MATCH D119-796-171 DWS.	15.07.02
H	NOTE 9 RE-WRITTEN. BONDING INSTRUCTIONS MOVED TO IN. SEE PREVIOUS REV FOR DETAILS.	15.10.13
I	D5023-100 MATERIAL REPLACES D5008-100. D5136-1/2 & D5134-041/-042 NOW INSTALLED ON PRIMER.	15.10.13
J	ADD NOTE 14.5.18 ON SHT 1. ADD PAINT/PRIMER MARKING LOCATIONS. REVISE NOTES ON SHT 1 & 4. REVISE BOM ON SHT 2 TO ADD GROUNDING CLAMP AND ASSOCIATED HARDWARE. REF PAR 17-590.	17.02.10
K	CHANGE LOCATION AND ORIENTATION OF D5515-1 GROUNDING CLAMP. REF CAR 18-222.	18.06.16

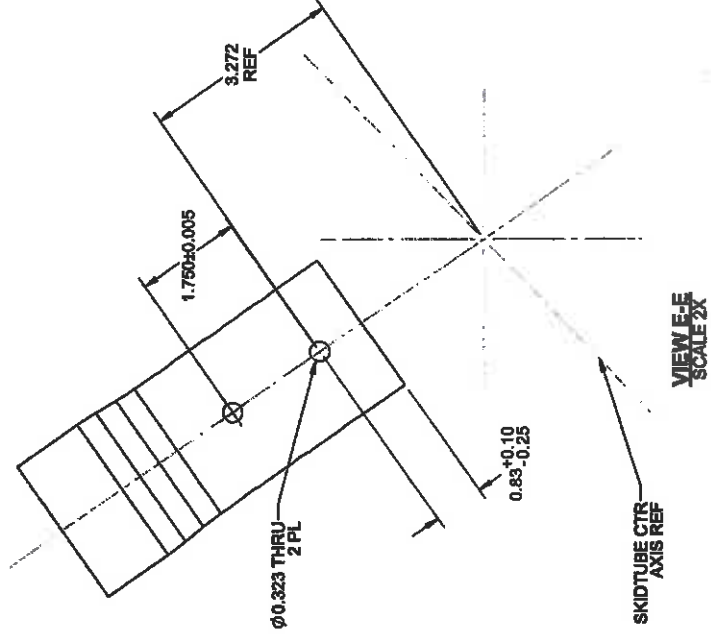
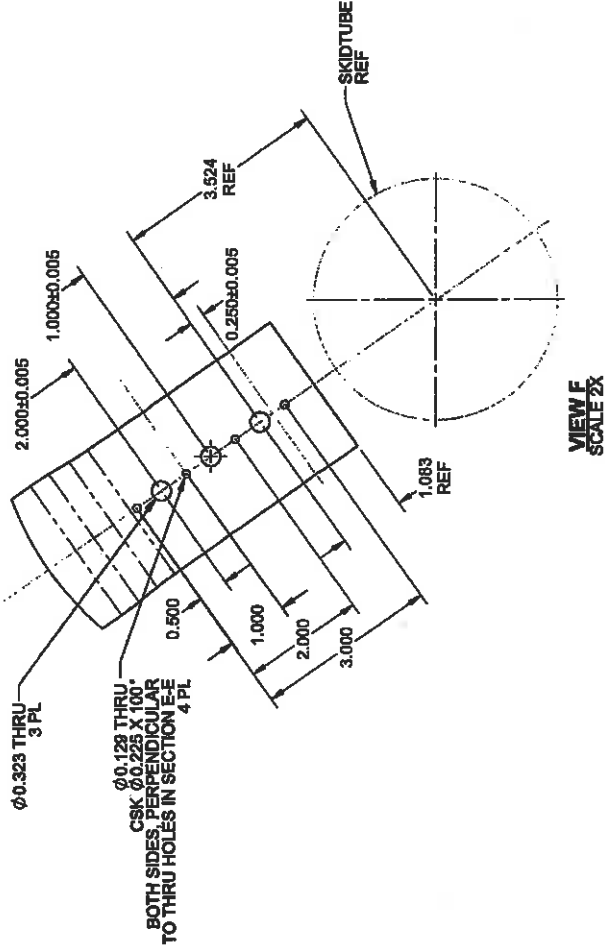
DESIGN	AP	MMW	18.06.16
CHECKED	MMW		
MFG. APPR.	JFS		
APPROVED	NO		
DE APPR.	CP		
DATE	18.09.19		

DART AEROSPACE LTD	REV. K
HAWKESBURY, ONTARIO, CANADA	
D119-796-241	SHEET 1 OF 7
XTUBE ASSY (AW119 MKII AFT)	SCALE
NTS	



1 2 3 4 5 6 7 8

D C B A



UNDER REVIEW
URF 19-798 19.07.04 (SAD)

RELEASED
2019 MAY 07

DESIGN	AP	MA	REV. K
DRAWN	MA	MA	DRAWING NO.
CHECKED	ZF	ZF	D119-796-241
ENG. APPR.	NO	NO	SHEET 5 OF 7
APPROVED	GP	GP	TITLE
DE APPR.			XTUBE ASSY (AW119 MKI AFT)
DATE	18.08.19		SCALE
			NTS

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

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Entered: _____ Date: _____

WORK ORDER NON-CONFORMANCE / ROUTE UPDATE

Route update only

NCR No. _____

Job: _____ Part No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐		DEPARTMENT/PROCESS Cross tube ☐ Eng. (Non-AW) ☐ Small Fab ☐ Prod. Eng. Coord. ☐ Finishing ☐ Rec/Store/Packaging ☐ Skid-tube ☐ Machining ☐ Large Fab ☐ Engineering ☐ Water Jet ☐ Supplier ☐ Quality ☐	
Date: _____	Sequence #: _____	QTY Affected: _____		MRB (QS1042)	
Description Work Order Deviation		Disposition			
Root Cause		FAULT CATEGORY			
Operator ☐ Manufacturing Process ☐ Equip/Tooling ☐ Handling/Preservation ☐ Material ☐ Product Improvement ☐ Process Improvement ☐ Human Factors ☐		Pressure/Forced ☐ Bending ☐ Crushing ☐ Cracks ☐ Crimp/Kink/Ripple/Wave/Twist ☐ Marks/Chatter ☐ Mislabeled ☐ Other/Details: _____			
		Contamination ☐ Misaligned/off center ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Incomplete/Unclear Instructions ☐ Drill Holes ☐ Fit/Function ☐			
		Power Loss/Surge ☐ Folio/Program ☐ Grain Direction ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set/Set-up ☐			
		Positioned Wrong ☐ Outside Tolerance ☐ Drawing ☐ Finish ☐ Part Lost/Missing ☐ Misread ☐			